Silver Sunshine

Today

Today is all sufficient for
The burdens we must bear;
Today is ours, to live, to love,
Our brother's sorrow share.

Tomorrow never comes to us,
And yesterday is gone;
Therefore, today is all of time
We have to build upon.

Tomorrow is so far away
As yesterday it seemed;
So put your shoulder to the wheel
And do the things you've dreamed.

—Author Unknown

SILVER SUNSHINE

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EDITORIAL

Sugar Beet Production Highlights

Status of Sugar

Sugar in the world is presently drawing more attention than perhaps any one item unless it could be said that oil for the lamps of Britain holds the spotlight. Buy now or wait and see is the burning question. Beet sugar producers naturally are hoping that prices will stabilize somewhere near the present level which is about $5.75 raw value in Cuba as compared to about $3.25 last fall.

Markets

The last two seasons have produced very good crops of sugar on the prairies. The present supply will fill all the markets with some to spare, so expansion of acreage is presently at a standstill.

1957 Prospects

The usual labor problems incident to producing the 1957 crop are being considered. There is a positive brightness that did not appear last year — namely, a commitment of a number of new labor families, also an attitude of willingness to do all possible on the part of government agencies — i.e. Department of Labor - Immigration and the Department of Indian Affairs. All combined, the situation has some bright spots showing through.

Spring Mechanization

We made very definite progress last year in spring mechanization. Growers proved the efficiency of the mechanical thinners. Fields can be saved to a point of handwork for weeding only. Machine stands ranging from 100 - 125 beets per 100 foot of row were handled with less hand labor and compared favorably in tons and sugar per acre with conventional hand thinned crops — multiple hills are not a serious problem.

A Few Fundamentals

Advice is freely available which is presumed to be the answer for the ills of the man on the land. Expediency, however, many times limits the scope of any radical change. Time, weather, finance, labor and markets all add to this factor. However, in sugar

(Continued on Page Two)

Canadian Beet Producers Meet

Bright sunny southern Alberta weather greeted delegates from major sugar beet areas attending the 14th Annual Convention of the Canadian Sugar Beet Producers' Association held February 15, for the first time at Lethbridge, Alberta.

Left to right: L. R. Jensen, Alberta President; Eugene King and Roy O'Niel, Canadian President and Secretary, respectively; P. O. Hardich, Ontario President, and Lee Tully, Manitoba President.

Eugene King, national president hailing from Chatham, Ontario, presided at all sessions of the one-day gathering during which problems of common interest were considered.

The convention elected Mr. King to his fourth term as national president, also L. R. Jensen of Magrath, first vice-president; Dave P. Froebe, Homewood, Manitoba, second vice-president; and Roy C. O'Neil of Chatham, secretary.

Canadian Sugar Factories Ltd. were hosts to delegates at a banquet Friday evening. On Saturday Manitoba and Ontario delegates were taken on a tour of southern Alberta, including the Crow's Nest Pass.

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beets the fundamentals never change. 20 acres of 20 ton beets are far better than 40 acres of 10 ton beets. The income is the same but the difference in the outgo — not comparable. How do you grow 20 tons per acre? We suggest you read or inquire of those who are doing it — they will have one sure answer — build up fertility. There are many others well known to most growers.

Growers Turn To Mechanization In 1956

J. Gerald Snow

Almost unnoticed a revolution has taken place in the last ten years in the tools and methods used in producing the sugar beet crop. This is reflected in the sharp swing by Alberta beet growers to the use of machines in production of the 1956 beet crop.

Among the various factors responsible for this trend, perhaps the two most important were the drastic decline in supply of available labor to perform what have heretofore been largely hand operations and the acceptance by growers of machines and methods as confidence has been gained from actual use and experience and observation of their effect upon net returns.

The trend to machine methods was most pronounced in thinning. The interest in this phase of beet production was evidenced by the attendance of over 70% of all beet growers at the Institute Meetings held in March in the various beet production areas. The highlights of these were reports by individual growers themselves of their personal success with machine thinning.

Further to this intensified program the Company provided an assistant to help each fieldman, making a total staff of 20 persons in the field, to give machine thinning guidance to individual growers. For a two-week period in June additional technical assistance was given to the program by Mr. George Rienks, Silver Manufacturing Engineer.

Growers purchased a total of 76 new four-row thinners during 1956, to bring the total in use to 241. Over 8,000 acres of the 36,150 acre crop — 23%, received some form of down the row thinning machine treatment, well over double the work of any previous year. As considerable acreage received more than one operation the total acres worked exceeded 12,000.

Table 1 accompanying this article summarizes the distribution of 1956 thinner and harvester ownership and acreages worked by receiving stations. The varying experiences of many individual growers are set forth in articles of this issue of Silver Sunshine for the general information of growers who may be interested.

The experience among 400 growers with machine thinning experience on several thousand acres during the two years 1955 and 1956 prompts the following observaitons and conclusions.

1. A mechanical thinning program allows the entire beet acreage to be planted at the earliest possible date rather than "staggering" planting dates to fit the convenience of hand labor during the thinning operations.
2. The seeding rate and type of drill used have a direct bearing on the emergence pattern. The planting of 6 - 7 lbs of processed seed with a precision type drill is essential to a uniform pre-thinning stand.
3. Stands are reduced and small weeds eliminated by tine weeder operations in proportion to size of the beets and severity of the operation. Such stand reduction makes subsequent counts necessary to determine size of cutter heads to be used in subsequent machine operations.

A common operation wherein one in four Alberta growers used a thinning machine in 1956

4. The experience of growers to date indicates a final stand after machine and hoeing operations containing a maximum of 125 beets per 100 feet of row is most desirable and results in yields comparable to hand labor. Leaving heavier stands increases the number of unmarketable beets lost in harvest and accentuates green growth and machine topping problems at harvest.
5. A proportion of double hills do not decrease yields — two things happen — either there are two beets of marketable size equivalent to or greater in weight than one "single" beet or there is a normal size single beet with the second plant becoming a small fingerling lost in the harvest operating and so of little consequence.

6. Following machine work, too many beets are often removed by hand labor in hoeing operations. This usually results in reduced yields and tends to put machine thinning in an unfavorable light.
7. Mechanical thinning used as a last resort is usually unsuccessful. For best results the program must be planned. There is, however, a place for the thinning machine in holding a crop until workers can take over.

The change over to machine harvest of the beet crop has been more gradual and has extended over a longer period than machine thinning developments. This is evidenced by the following statistics of machine harvest. 1946 - 21 machines harvested 500 acres; 1950 - 141 machines harvested 3500 acres; 1955 - 343 machines harvested 18,000 acres, and last year 1956 - 931 growers using 409 harvesters accounted for 23,000 acres—over 64% of the entire acreage.

The most significant recent harvester change has seen the introduction of multiple row harvesters, two having made their initial Alberta appearance during the past two years.

One of these was the 4 row topper and 4 row lifter loader, two unit harvester developed experimentally by Robert Wilde, local grower in 1955, with the same principles being incorporated into three similar harvesters put on the commercial market by the Kirchner Machinery Co. in 1956. These machines have a high daily capacity - 10 - 12 acres under good conditions, and after some structural "bugs" are removed as result of last season's experience, hold considerable promise for the future.

An outstanding feature of this harvester is the complete recovery into undisturbed windrows of the beet tops placed so that they are not lost or wasted in the various harvest operations. No other commercial machine coming to our attention to date approaches this efficiency.

The other harvester in operation locally for the first time is the two row Gemco, also a two unit operation in the first of which the beets are topped and the tops delivered by elevator conveyor direct to trucks for removal from the field. In the second operation the beets are lifted - utilizing wheel type lifters and conveyed direct to trucks. One such machine operating under good conditions last fall proved to have an average daily capacity of 9 acres harvested.

So the saga on suger beet mechanization unfolds as the old order changes and new practices come to be accepted and adopted. Woven throughout the pattern, however, is the thread of certain individuals, growers and others interested in the industry, who have toiled and labored to make the dreams of yesterday the realities of

today and the commonplace of tomorrow. The accomplishments of some of these individuals are reviewed in the following articles.

TABLE 1

1956 SUMMARY OF MACHINE THINNING AND HARVESTING BY STATIONS

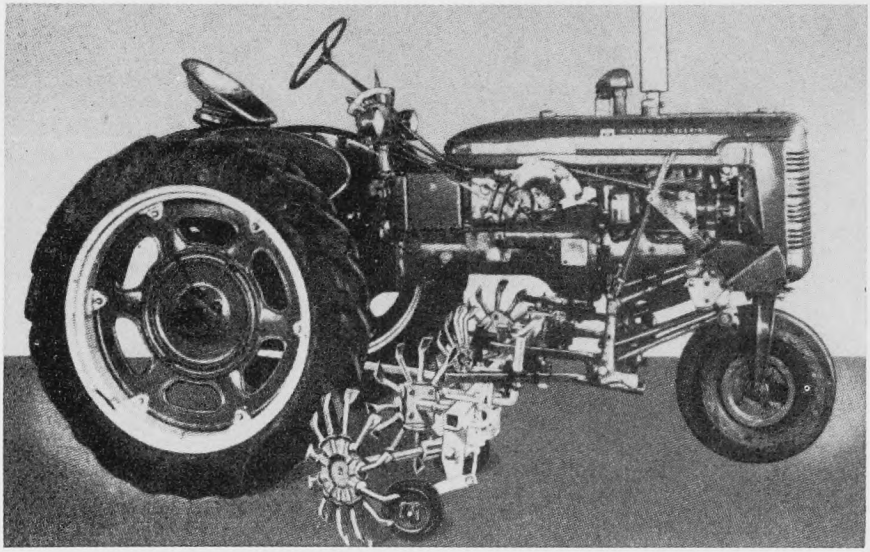
		THINNERS			HARVESTERS		
	Ac. Hvst'd	No. Mach.	No. Growers	Ac. W'kd	No. Mach.	No. Growers	Ac. W'kd
Raymond	3648	44	51	1040	57	98	3324
Stevans	496	6	6	222	4	9	335
Magrath	466	5	2	65	6	17	309
Stewart	1195	12	26	426	15	44	820
Broxburn	2247	18	29	338	29	95	1934
Coaldale	2788	21	38	812	37	75	1611
District Total	10840	106	152	2903	148	338	8333
% of Total				24.42			76.87
Shields	1891	12	12	270	12	29	647
Whitney	986	8	11	210	6	24	498
Monarch	387	2	4	46	5	18	279
Picture Butte	6281	27	48	1089	56	102	3049
Iron Springs	903	5	13	202	12	18	579
Tennion	2097	9	22	432	13	26	727
District Total	12545	63	110	2249	104	217	5779
% of Total				17.07			46.06
Wing	1117	4	11	271	15	37	802
Tempest	1696	10	10	144	18	52	1139
Cranford	1802	6	7	373	23	43	1339
Taber	8150	52	108	2268	89	232	5463
District Total	12765	72	136	3056	157	376	9120
% of Total				23.25			71.44
GRAND TOTAL	36150	241	398	8208	409	931	23232
% of Total				21.51			64.26

They Proved Machine Thinning

E. D. Piepgrass

"Do you want a beet labor family this year?" "No," replied Doug Paxman, "We intend to do a complete job this year with our mechanical thinner." His son Willard concurred.

This short answer portrays the confidence any grower needs who has had no previous experience with machine thinning, or for that matter for one who has.



The Eversman thinner was used successfully on the Paxman farm

After some unhappy experiences with contract labor, it was decided by the Paxmans that they could probably leave a better stand with the machine than their beet labor had left. They reasoned that in as much as their preparation was fairly clean — pea land and summerfallow — they could get along with once-over with a long handled hoe to remove weeds and do a little trimming.

The seeding was done with a Milton drill which resulted in a good even stand.

Most of the acreage was gone over with an Eversman thinner and the stand reduced from the original 30 beet containing inches per 100 inches to 96 hills per 100 feet of row. When it came time to hoe this was done by schoolboys at a total cost of $10.00 per acre.

Out of the 45 acres planted 7 acres were lost because of heavy rains in June. Of the 38 acres carried through to harvest one patch of 13 acres yielded 15.3 tons per acre while the overall average was 11.5. The previous year's tonnage was 9.3 with the 5-year average 10.7.

A good job of harvesting was completed with a Marbeet. Some trimming was necessary because of the difficulty encountered with clumps which the machine either did not pick up or did not top properly.

These growers are really sold on the continued use of the thinner. With the success in 1956 they are anxious to go again, safe in the knowledge that machine thinning is a practical realization.

Machine Thinner The Answer

J. R. Salmon

Joe Varga wore a worried look that morning as he stood gazing over 270 acres of fine irrigated land. Signs of spring were showing on every hand. A meadowlark warbled on a nearby telephone post, the last traces of winter were finally disappearing. Yes, the land would soon cry for attention. But why was Joe worried? **The labor house was empty.**

Could he, with only his wife and son, hope to handle all the work on the farm — 64 acres of beets, 65 acres of canning peas, 25 acres of corn, 5 of cucumbers and 2 of pumpkins? He realized his father-in-law would give some help, but this was not enough.

It was then that Joe Varga made a wise decision. Why not try a mechanical thinner?

The thinner was purchased. The spring came. The crops were planted. Joe was a little disappointed in the stand of beets, 32 acres were excellent but the balance rather thin. The mechanical thinner, using the tine weeders, was started on the thin stand. By the time he reached the heavier stand he stopped and made a count, an average of 26 beets containing inches per 100 inches of row. He put on the 8-knife with the 1¾ inch head and finished the field. A week later he returned with the 16-knife ⅝ inch head and completed the thinning.

His wife and son started thinning on May 25, occasionally assisted by the father-in-law, and by July 6 were finished. During

the interval they also hoed the corn, cuucmbers and pumpkins. After the pea harvest the family gave the beets a weeding. In the meantime Mrs. Varga picked most of the cucumbers.

Effective use of thinner is made in a second operation using 16 x 5/8" knives

"Well," said Joe over the fence to Bill Bullock as the last of the beets were being harvested, "We made it." Bill was a little doubtiul in the spring as to what a mechanical thinner could do, but as he saw the smile on Joe's face after delivering 975 tons of beets on 64 acres or 15.25 tons per acre, he changed his mind. A mechanical thinner will work!

We congratulate the Varga family. We know it wasn't all thinner, but it helped.

Truth has only to change hands a few times to become fiction.

The boy who does his best today will be a hard man to beat tomorrow.

Most things have two sides. It is very difficult to slice something so thin that it has only one side.

Wing District Yields Maintained

E. R. Edwards

Thinning machines are becoming more prevalent on sugar beet farms every year. With the shortage of hand labor, growers are being "forced" into trying the machine to see just what it can do.

Those who use the machine as a last resort do not always get the best result, but at least they learn that you can be very severe on the beets and still have enough left to produce a satisfactory yield. The "rough" treatment usually results in reducing the amount of labor required by 50 per cent.

Growers who have both machine and labor do not use the machine as severely as they should, and as a result too many beets are left in the row and, although the amount of work is reduced, a hand thinning job is then a must.

Albert Rowley of the Wing district was faced with the situation of having no labor, 19 acres of excellent weed free beets and owning a half share in a Silver thinner. He decided to use the machine. Eighteen of his 19 acres were completely machine thinned, the other acre was hand thinned.

The only labor that Albert could round up was some casual labor from Coaldale. The labor was paid at the rate of $1.00 per hour, resulting in a total cost of handwork on the machine thinned beets of $17.65 per acre as compared to $29.00 per acre on the hand thinned beets. The final yield on both machine and hand thinned beets was the same at 14 tons per acre.

Byron Rutt, also of Wing, had somewhat the same situation to contend with. He reports that the sixteen acres he completely machine thinned and then long handle hoed produced over 12 tons per acre, while the straight hand thinned beets produced only 7 tons per acre. Byron says he would have been better off to have completely machine thinned the entire acreage and not put any hand labor in the field at all. When the casual labor would come to a weedy part of the row they would cut everything out instead of doing a proper job of thinning. As a result the yield on this portion of his acreage was reduced drastically. He plans to use the machine on all his beets this year.

Hardening of the heart ages people more quickly than hardening of the arteries.

Mechanical Thinning Increasing

M. C. Vance

The upward trend in the use of thinning machines in the Stewart - Broxburn area is reflected in the purchase of an Eversman and six new Silver thinners in 1956. The thinking and planning of beet growers generally indicate they are eager to devise new and better methods of meeting the problems of the day. One of the factors in holding back a grower from using the beet thinner is the thought that his usual tonnage will be sacrificed. Oddly enough the reverse has often occurred.

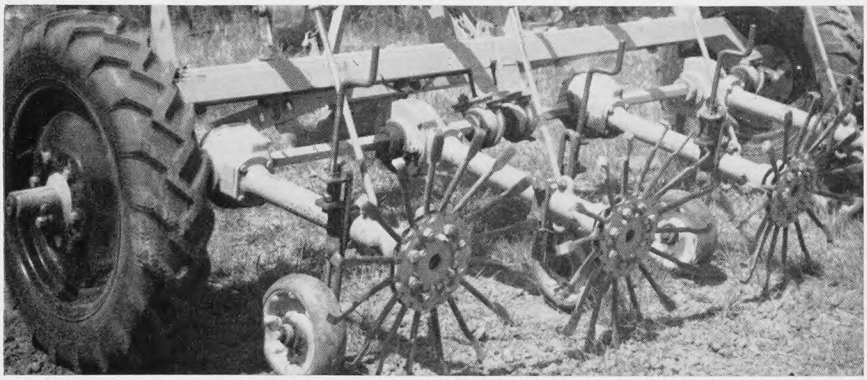
Once over with the thinner aided greatly in realizing an early completion of thinning on 65 acres beets on the A. A. Janzen farm

A. A. Janzen and Sons harvested 65 acres of sugar beets averaging 14.6 tons per acre or 2 tons above the district average. Most of this acreage was tine weeded early in the season with their newly purchased Silver thinner to break crust, give a down-the-row cultivation and mulching, eliminate small weed growth and aerate the soil. Thus early valuable growing time was gained. About half the acreage was later machined, partly with the 8 and some with the 16 knife heads, on a machine assist basis followed by hand thinning which was finished June 21, somewhat earlier than usual.

Jim Kubota while working in his father's 45-acre contract was equal to the task of designing a crank-type adjusting screw

Jim Kubota, grower, and Milo Vance, Company fieldman, stop to adjust working of Silver thinner

attachment for the gauge wheels, controlling depth of cutterhead penetration on their new Silver thinner. The simple device permits quick settings without the need of loosening bolts. As constant adjustment is necessary in mechanization, Jim has by this means saved himself time and patience in making his thinner do the job expected of it.



This simple but effective depth adjustment device on each cutter was worked out by Mr. Kubota

When in proper adjustment and under sound guidance the thinning machine has proven its worth in 1956. More will be expected in '57.

Machine Beats Hand Thinning

M. C. Russell

The Kundriks at Shields station, purchased a rear mount Silver thinner in 1954. They had sufficient labor but could see that this condition would change as labor was becoming more scarce each year. They made some use of it that year, and in 1955, in addition to using it as a machine assist, did part of the acreage on one of their three contracts, twice over. This experience convinced them that the machine was practical, and so they were not afraid to use it when the expected shortage of labor developed in 1956.

John Kundrik, Shields grower, in third year of machine thinning experience appraises with K. E. Pilling, Agri. Supt., one of the fields of the 70 acres worked with thinner in 1956

Seventy of the seventy-four acres on the home contract and Kundrik and Murray contract were given a machine assist in 1956, but it was on the son John's place that it was given the real test. The machine was used on the entire 27.1 acres with 11.4 being completely thinned mechanically, using the 8 x 1¾ thinning head followed by the 16 x 1 head. Two groups of labor did the hoeing on these, one of them hoeing to a stand of almost all singles, and the other group just removed weeds and clumps.

At harvest both of these fields out-yielded the best of the straight hand thinned beets, justifying their faith in the thinner, as well as giving a saving of $10.00 per acre on labor.

Another benefit derived from using the machine was that five workers were able to do just over 90 acres or an average of 18 acres per worker.

Kundriks say they are prepared to do still more in 1957 and that they have overcome the fear of ruining a crop by the use of the thinner.

We Laughed Last

I. B. Harris

"My beets were nearly ready for thinning and I had no one to do the job," says Steve Kuryvial of Cranford, "so with some doubt, but encouragement from son Jerry, I purchased an Eversman thinner.

"With the help of the fieldman we adjusted the machine until it was doing a good job on the first time over. Three days later we started over the field for the second time and then I was worried. I figured that my beet crop was ruined, but Jerry was more optimistic and went right on cutting out the beets while I walked through the field shaking my head. All summer long my neighbor across the fence laughed at my mechanical thinned crop but really scratched his head in the fall when he saw the beets coming off that field.

"My wife and I did all the hand work on this patch of 17.1 acres, and although it was not planted on the most fertile part of the farm it yielded 18.0 tons per acre as compared with 20.25 tons per acre on the remaining 17.8 acres of the contract, which was planted on land more suitable for a beet crop. The 17.8 acres was gone over once with the thinner and then hand thinned. I am sure the tonnage would have compared favorably had the land been more nearly the same. The stand before we mechanically thinned was more uneven than on the other patch so that would partly account for the lower tonnage.

"Yes, you bet we are going to use the thinner next spring! With our experience of last year we feel we can do a better job and we won't hesitate in going ahead when the beets are ready to be thinned," comments Steve. "We won't wait until the beets get too big because the weeds get bigger and the machine won't cut them off. Weeds can be a big problem in mechanical thinning."

Leave All The Beets

J. R. Finley

Although George Barron and his son John have a long-time tonnage average four tons above the district average, they were not satisfied with their yields on the fields where delayed thinning became necessary. They were certain that no reduction in yield would occur if the rapidly growing beet population could be controlled until hand labor had a chance to clean up the field. After careful study they decide that machine thinning was the solution.

Realizing that successful spring mechanization is dependent on good germination, they purchased 4 Milton Precision Planter Units. These were attached to the rear tool bar of a John Deere M tractor. Excellent results were noted on emergence, with an average of 32 beet containing inches per 100 inches of row.

A new Silver thinner arrived on time and replaced the Milton units on the rear of the John Deere. A trip over an 8 acre field with the tines on May 31 was followed on June 4 with the 8 x 1¾ cutter heads. A week later the machine thinning program was completed with the 16 x ⅝" heads.

Hand labor did not go into this field until they had hand thinned another 32 acres. By now the beets were well past the thinning stage. The labor was instructed to remove the weeds, break up clumps and leave remaining beets complete.

The harvest on this field was very satisfactory as it yielded as well as the fields thinned weeks earlier. Although many of the beets were smaller due to doubles or multiples, the higher stand produced as good tonnage.

The Barrons plan a careful machine thinning program for 1957 with intention of leaving as few clumps following the machine as possible. Labor will be instructed to **leave all beets** and **remove only weeds.**

The advantages of extending the thinning period to keep the crop under control were so evident in 1956 that their program is definitely toward greater machine accomplishments in 1957 and the years ahead.

The reason most people do not recognize opportunity when they meet it is because it usually goes around wearing overalls and looking like hard work.

Thinner Scores Again

R. A. Hamilton

Each year more beet growers in Southern Alberta are becoming convinced that mechanical thinning will work. The season of 1956 saw many growers experiencing the benefits of the thinning machine. Ludwig Letal of Picture Butte was typical of these men.

Following experience on this field with thinner last season, Mr. Letal is planning to machine his entire 45 acre contract in 1957

Ludwig was skeptical about the machine but did borrow his neighbor's to give it a try. After seeing the benefits of the tine weeders in his field and realizing the value of using the cutter heads, Ludwig returned his neighbor's machine and purchased one of his own.

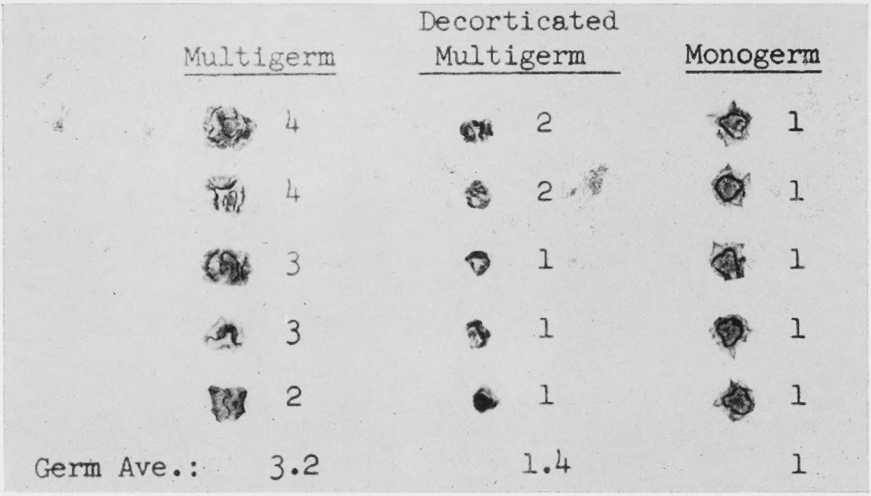
Mr. Letal grew 45 acres of beets. Of these, 17 acres were mechanically thinned - 12 of the 17 acres were tine weeded and gone over with the 8 x 1¾" knives, the other 5 acres were gone over with the tines, the 8 x 1¾" and the16 x ⅝" cutter heads.

Harvesting data showed that the complete mechanically thinned beets yielded slightly less than the other. However, the grower and the labor are convinced that with the experiences of 1956 they will be able to save much time in 1957 with the thinner and produce better yields.

Hybrid Monogerm Seed Production

F. H. Peto

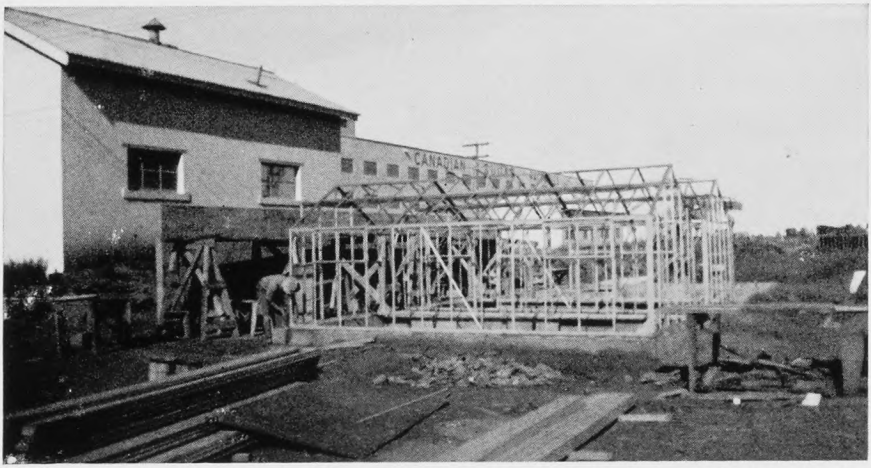
The possibility of obtaining higher yields from hybrids than from standard sugar beet varieties has been recognized for many years. This principle was first exploited in the successful development of high yielding hybrid corn. Recent discoveries of male sterility and the monogerm character in sugar beets has permitted the development of seed which is both hybrid and monogerm. A male sterile strain is one that is incapable of producing any good pollen and such a strain must be planted close to a male fertile variety in order to produce seed. If the male and female parents are of different breeding, then hybrid seed is produced.



The beet seed of tomorrow on the extreme right is compared to seed now in common use or already out of date

The above principles account for the rapid development of monogerm seed, one strain of which in our 1956 trials appears to be reasonably well adapted to Alberta and Manitoba conditions. This seed is a hybrid between a male sterile U.S. monogerm and a standard male fertile multigerm variety which is well adapted to western Canadian conditions. It was produced by mixing about 95% of the male sterile parent with about 5% of the male fertile parent. Thus, 95% of the resulting seed was both hybrid and monogerm. This seed was available in test quantities only, but its equivalent can be produced in B.C. using U.S.-bred male sterile monogerm and an Alberta-bred pollinator.

The Canadian Sugar Factories Research Department's basic breeding problem and long-term objective is to produce well adapted, male sterile female parents by incorporating the monogerm character into our well adapted Alberta stocks. To do this, we must first transfer the monogerm character to our best male fertile varieties and then produce male sterile equivalents of these varieties and then produce male sterile equivalents of these varieties. This transfer is of utmost importance since U.S. varieties bred for more southerly conditions do not yield as well in Alberta as our own well adapted selections.



These research greenhouse facilities at Taber cut in half the time required to develop new seed strains

The first crosses in this programme were made in our greenhouses at Taber in the winter of 1954 - 55 and four backcrosses will be completed by 1963. Seed from tested material will be available for increase in 1964 while the first commercial monogerm seed would not normally be available to growers before 1966 or 1967. The completion of this programme would ensure that over 90% of the genetic constitution was from Alberta varieties.

While the above programme will be carried to completion, we feel that the industry cannot afford to wait ten years more for monogerm seed. Evidence available at present indicates that monogerm hybrids with only 50 - 75% of our own breeding can have a yield and quality comparable to standard multigerm varieties now in use. We are therefore starting immediately to produce seed of this type at Ladner, B.C. A mixture of about 95% of a male sterile monogerm of U.S. origin with about 5% of our own multigerm selections, to act as a pollinator, will be planted in the summer of 1957. The resulting hybrid monogerm seed will be harvested in 1958 and we hope to obtain enough seed to plant about 10% of our commercial

acreage in 1959. This seed would contain 50% of our own blood lines and the yield and quality of this seed should be roughly equivalent to the monogerm hybrid tested in Alberta and Manitoba in 1956.

In addition, we will be continually testing the performance of our monogerm strains in all generations of our breeding programme at Taber and as soon as any monogerm strains are produced, which prove to be superior to commercial strains, they will, of course, be released for propogation.

Monogerm is expected to escape much of the damage now caused by the decortication of multigerm seed, since monogerm seed will require only mild polishing and grading with little or no fracturing of the seed balls. The Plant Breeder is also selecting for larger germ size which will likely give more vigorous seedlings, but may also necessitate a change in seed grading standards with an accompanying increase in hole size in the seed drill plates.

The main advantage to the farmer in the use of monogerm seed will be the extent to which he can save labor in thinning through better spacings of seedlings in the row. In order to realize this advantage the following conditions must be present: (1) The farmer must prepare a seed bed capable of germinating a high proportion of the seeds to obtain a uniform stand suitable for machine thinning. (2) Precision drills capable of spacing single seeds uniformly must be used since two monogerm seeds in the same drill cell can result in seedlings just as difficult to thin as where two germs emerge from a single seed ball. (3) Excessive weeds in a crop can raise hand labor costs in thinning to a point where the advantages of monogerm seed are overshadowed.

The Agricultural Research Department of the Canadian Sugar Factories will be running a series of processing and drill tests to provide basic information of use to the farmer. A gradual change-over to monogerm seed is planned. The 1957 and 1958 plantings will be limited to test strips on selected farms. Sufficient monogerm seed is expected to be available in the spring of 1959 to plant 10% of the acreage in Alberta.

Accompanying the gradual increase in the use of monogerm seed, there should be improvements in germ size and vitality; the use of more and better precision drills and greater care in seed bed preparation. The combined effect of such improvements are expected to contribute greatly to helping solve the spring labor problems.

Suitor: "Well, Junior, your sister and I are going to be married. How's that for a piece of news?"

Junior: "Shucks! You just finding that out?"

Precision Planting Essential

K. E. Pilling

Twenty-five years ago, when seeding called for 20 lbs of whole whole seed per acre, little regard was given to a desirable stand pattern. The sole idea was to assure the emergency of plenty of seedlings for a full stand of beets. However, times have changed until at the present time with machine thinning in mind, a different approach is required.

Aims:

1. **An even stand pattern.** Where mechanical thinners remove a set portion of the row this is highly desirable as an even pre-thinning stand will result in an even thinned stand. A pre-thinning stand of 24 to 34 beet containing inches per 100 inches of row is the most advantageous and would be exepcted under good conditions from a seeding rate of 6 to 7 lbs of decorticated seed per acre.

2. **A high percentage of singles.** This is a big advantage as satisfactory thinned stands must contain a high proportion of singles.

3. **Reasonable freedom from weeds.** Accurate seeding for rapid germination will get the beets away and aid greatly in the opportunity for control of weeds.

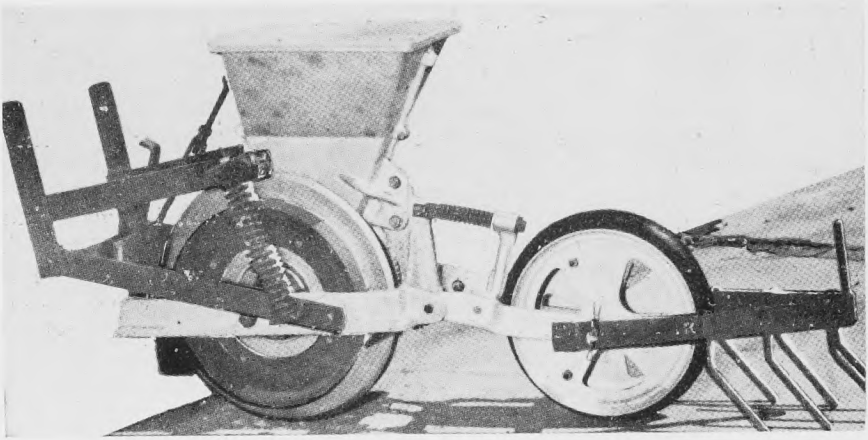
Equipment:

You have heard the adage that good equipment makes a good farmer better. It is also true that good equipment poorly operated will give unsatisfactory results; and conversely, through careful use the most can be had from older equipment.

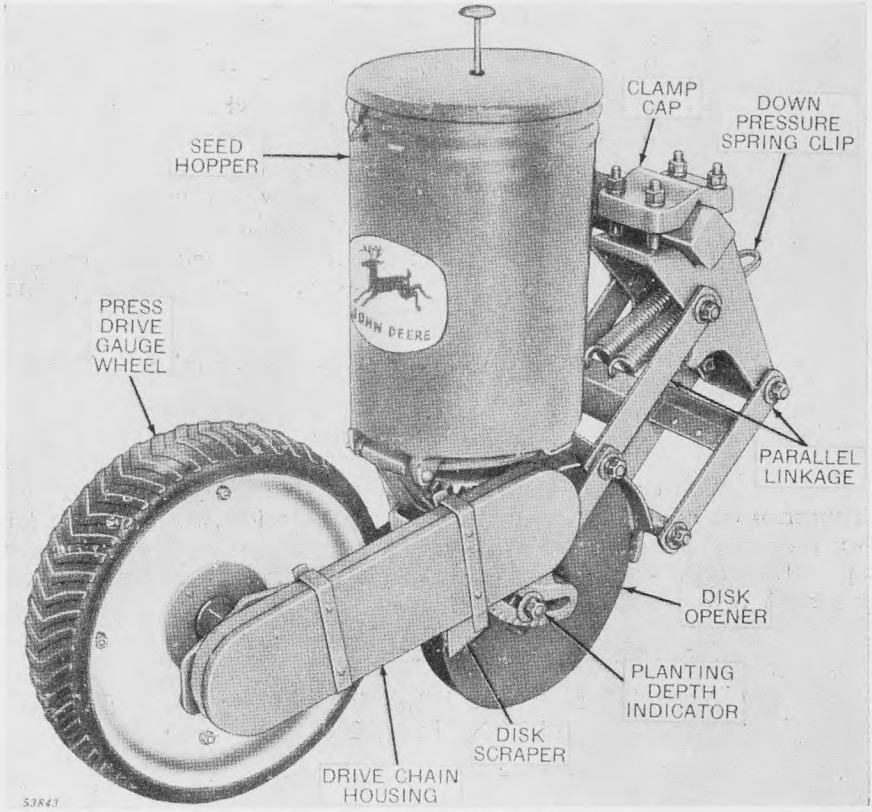
Three present types of planters here fall into the precision planting class:

1. The John Deere No. 64 and 66 drills which are familiar to all were the first approach here to this need. They feature a lower seed can and a shorter seed drop through a small bore smooth tube. They have a good rating for precision planting.

2. The Milton Precision Planter made its appearance in our area in 1953. It comes as a complete drill or as a hang-on unit complete with frame, or as individual units which can be adapted for use on your present beet drill or used with tool bar mounting. It features self-contained units which are ground driven. Seed cells are machined into a bronze seed wheel which operates within double disc furrow openers and carries the seed around to the bottom of the



A single unit Milton precision planting unit



A single unit John Deere "short drop" unit

wheel for a minimum 1½" drop to the seed bed, thus insuring accurate placement and spacing of the seed as it is discharged from the seed wheel.

It is a highly adaptable planter. There were 4 complete drills and 14 sets of units in use within the three factory areas during the past season.

3. The John Deere Flexi-Planter No. 70A will be available here this spring. It is a self-contained unit for tool bar mounting. It uses present seed plates over 12" double disc furrow openers. Decorticated seed is channeled through a smooth seed tube. Drive chain operation is through a triple-purpose press wheel, drive wheel and guage wheel.

Practice:

1. Overhaul drill so that it is mechanically sound with all parts working freely and with furrow openers in good condition.

2. Adjust to:
   (a) Uniform seeding depth for each row of 1" to 1½".
   (b) Uniform pressure for each press wheel. This can be checked with a dairy scale by pounds pull.
   (c) Uniform width of 22" between rows. The positive control for this is to tie together with strap irons, bolted loosely at units to allow flexibility.
   (d) Level position so that when hitched and in the ground the frame is level with the ground and the seed cans vertical.

3. Drill in straight rows. This allows down the row thinning **on the row.**

4. Restrict rate of travel to not over 2½ m.p.h.

5. Use corrugators between every other row. This is cheap insurance against soil drifting, and is an aid to following the row for early cultivation and as preparation in case of emergency "irrigating up". Run sufficiently shallow that dirt will not be thrown against the seed row.

6. Plant as flat as possible into a firm seed bed.

PRECISION PLANT FOR MACHINE THINNING FOR GREATER RETURNS PER ACRE.

Life is full of shadows but the sunshine makes them all.

Transplanting Sugar Beets In Southern Alberta In 1956

G. C. Russell, S. Dubetz, and D. T. Anderson

Early in 1956 Dr. W. H. Fairfield, former Superintendent of the Lethbridge Experimental Farm, suggested that investigations be undertaken to study possible ways of lengthening the growing season for sugar beets in Southern Alberta. It was thought that substantial yield increases might be obtained if a practical means of lengthening the growing season could be found. One method of providing additional growing time at the start of the season would be to germinate and grow beet seedlings in a hotbed or greenhouse until the weather warms up enough to transplant the beets into the field.

Figure 1. Transplanting sugar beets May 16, 1956

On April 3, 1956, sugar beets were planted in flats in the greenhouse. It was planned to transplant the beets into the field about May 1. However, cold wet weather and snow delayed the transplanting until May 16, when the plants were about 8 to 10 inches tall with six to eight leaves. The beets were transplanted at about an 11-inch spacing using a single-row machine* requiring three people to operate it as shown in Figure 1. This machine is capable of planting about 2 acres of beets in an 8-hour day. It places about a cup of water with each plant. The weather at the time of transplanting was very warm, reaching a temperature of 75° F. by mid-afternoon (over 80° F within two days), so the plants wilted very badly (Figure 2). Surprisingly, within a few days recovery was excellent, and stand counts showed 104 beets per 100 feet, indicating a loss of less than 5 per cent.

* Two and four-row machines are available.

Figure 2. Sugar beets one day after transplanting May 17, 1956

Figure 3. Drilled beets (right) and transplanted beets (left) July 7, 1956

Plots of beets were seeded with a drill on the same day that transplanting was carried out. The field-seeded beets were hand-thinned early in June, and thereafter the whole experiment was treated in the same manner.

The field areas available for this work had not been suitably prepared for beet production because of the late planting of the experiment. Therefore, it was necessary to take special care in preparing the soil in the spring. Early in April sheep manure was applied to the area at the rate of about 10 tons per acre and thoroughly worked into the soil. In addition, on April 9, 700 pounds of fertilizer (16-20-0) were incorporated into the soil. In order to provide uniform fertility for the two types of planting, fertilizer was not applied through the drill at time of seeding.

The differences in top growth between the transplanted beets and the normally-seeded beets were very great as illustrated in Figure 3. Differences were noticeable until time of harvest, although the striking difference shown in Figure 3 was not apparent after the middle of August.

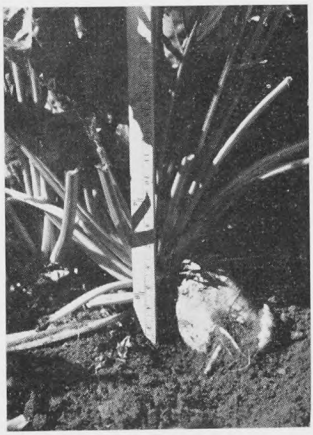


Figure 4. Transplanted beet growing at an angle October, 1956

Figure 5. Transplanted beets as topped by an "in-place" topping mechanism October, 1956

At harvest time it was thought that the transplanted beets might prove difficult to harvest efficiently with a mechanical harvester. These beets were not growing upright, as shown in Figure 4, and the possibility existed that this condition might result in inefficient topping by an "in-place" or "ground-topping" unit. Two types of harvester were used: the Catchpole "Cadet", which uses an "in-place" topper, and the Scott-Urschel, which uses a "within-machine" topper. Both machines did a very acceptable job of topping. The work of the "in-place" topper is illustrated in Figure 5.

Samples of beets were taken just before harvest time to compare shape and size of the beets from the different plots. Figure 6 shows that the transplanted beets were not well-shaped, the lower portions of the roots usually growing at right angles to the main direction of growth. This was possibly the result of the growing-tip of the root encountering some obstruction during the seedling stage or the transplanting process. However, the root samples from the transplanted plots average 2.3 pounds per beet, while the normal seeding average 1.8 pounds per beet.

Figure 6. Transplanted beets (left) and drilled beets (right) showing poorly-shaped transplanted roots, October, 1956

This difference in size of individual beets was reflected in the yields obtained. Half of the beets were harvested on October 11, while the remainder were harvested on October 24. The plots were harvested at the two dates to determine to what extent the normally-seeded beets would overtake the transplanted beets. The yields and sugar contents at the two harvest dates are given in Table 1. The transplanted beets resulted in an average increase in yield of 9.24 tons per acre.

TABLE 1. Yield and sugar content of transplanted and drilled beets at two dates of harvest. Lethbridge, Alberta, 1956

	Yield[1]			Sugar Content[1]		
	Oct. 11 tons/A	Oct. 24 tons/A	Av. tons/A	Oct. 11 %	Oct. 24 %	Av. %
Transplanted beets	26.59	27.43	27.01	17.2	16.8	17.0
Drilled beets	15.51	20.09	17.80	16.9	17.4	17.1

[1] Average of four replicates.

There are still many problems to be studied in attempting to lengthen the growing season by the transplanting method. However, in these times of labor shortages the reduction, or spreading out, of concentrated periods of heavy demand for labor by the elimination of the thinning process is an important consideration. It is especially important if it can be accomplished by an increase in yield. Therefore, this experiment is being continued to study the praticality of such a method of producing beets.

Chemical Weed Control In Manitoba

K. Schreiber

Two of the most troublesome weeds for sugar beet growers in Manitoba are green foxtail and wild oats. There are three chemicals available which are sufficiently developed to be of proven value for the control of these weeds.

The chemical effective for the control of small grasses which germinate close to the soil surface is trichloracetate, commonly called T.C.A. In this group of grasses belong green foxtail, pigeon grass and water grasses. T.C.A. is applied in water solution immediately or a few days after the beets are planted. The recommended rate for broadcast application is 4 to 6 pounds of T.C.A. per acre. It can be sprayed in narrow bands of 6 to 8 inches wide over the planted beet rows, only thereby reducing the quantity required by one-half to two-thirds. The chemical is completely soluble in water and gives excellent result where rainfall can be depended on to wash it into the upper layer of the seed bed. For this reason best results are obtained by applying T.C.A. immediately after planting (pre-emergence). Treatment with this herbicide after beets and weeds are up (post-emergence) is frequently ineffective or slow in action due to lack of timely rainfall. The cost of this weed control measure is quite reasonable since

the price of the material is about 40 cents per pound and the commonly used sprayer is employed for this operation. Each year, for the past three years, approximately 1500 acres have been treated with T.C.A. with excellent results in Manitoba. Most of the spraying is done by custom operators. It is anticipated that this control measure will be still more generally adopted.

Wild oat control secured with I.P.C. using band "over the row" application

Two chemical compounds which have the power to stop all growth in certain members of the grass family, if applied when these particular grasses are just sprouting or about to come up, are isopryl N-phenyl carbamate, commonly called IPC and a Monsanto product registered under the trade mark of 'Randox'. Both chemicals are

Wild oat control in sugar beet field with Randox

especially useful for control of wild oats, volunteer barley, oats and wheat. Beets are practically unaffected by these herbicides, if certain sensible precautions are observed. The chemicals are available in an easily emulsified form. It is preferable to keep the amount of water used per acre to a minimum; consequently the common weed sprayer can be used to advantage. According to our experience, the rates for overall treatment are approximately 6 lbs of IPC or 3 to 4 quarts of Randox per acre, for band treatment 1½ to 2 lbs or 1 to 1⅓ quarts per acre respectively. Both chemicals must be applied before planting and immediately and thoroughly mixed into 1 to 2 inches of the seed bed. Thorough and immediate mixing is the most important single step in insuring complete grass control. The best procedure following overall treatment is to disc the field twice, once each way, and then to plant as soon as practical.

Close up comparing treated row on left and untreated row in centre. I.P.C. has eliminated the wild oats

The first obstacle in the introduction of overall treatments on a commercial scale in Manitoba was the cost of approximately $12 per acre for material. Based on our experience with T.C.A. we prepared two kinds of equipment for band treatments of these herbicides: a) booms with nozzles 20 to 24 inches apart were made up to accommodate the various row width patterns in use and to allow 6 to 8 inches band spraying over the beet row. The boom was mounted in front of the tractor. To mix the material into the soil a cultromachine was mounted on the front cultivator bar and driven from the

power take-off. The spraying equipment was driven from the tractor pulley. Finally a planter was pulled behind the tractor planting the beet seed in the treated bands; b) basically the same set-up was mounted on another tractor using a spraying and rototiller equipment manufactured by the 'Howry-Berg Iron Work Co.' in Englewood, Col.

The first barrier was thus eliminated, the incorporation and mixing of these chemicals into the soil was achieved and excellent control of wild oats obtained. This method was successful where rainfall followed the operation. However, the mixing operation dried out the soil and delayed germination of the beet seed until rain was received. Further tests are being designed to overcome this problem.

Equipment used in applying chemicals for control wild oats

Spring moisture is very necessary for the successful use of these herbicides. In areas where very limited spring rainfall is expected a light sprinkler irrigation may be necessary following the application of these herbicides to insure proper weed control. Where T.C.A. is applied it would carry the material into the soil where it is absorbed through the roots of the germinating grass seed. Following IPC application, irrigation would insure sufficient moisture for germination of the beet seed.

The waitress watched as the customer put eight spoonsful of sugar into his cup of coffee, and proceeded to drink it without stirring it first.

"Why don't you stir it," she asked.

The customer regarded her coldly and said, "Who likes it sweet?"

Maintaining Fertility On A Beet Farm

F. H. Peto

On soils growing beets in Southern Alberta we find an abundant natural reserve of potash and calcium but the soils are low in organic matter, nitrogen and phosphorus. The sugar beet is a heavy feeder of both nitrogen and phosphorus so it is obvious that the likely limiting fertility factors in production are these two elements. Table 1 shows the nitrogen and phosphorous removed in a 15-ton crop of roots and tops and also shows the amounts of these elements that are replaced by fertilizer, manure or sweet clover summerfallow.

The elements contained in the beet roots (50 lb N and 26 lbs P_2O_5) must always be replaced to maintain fertility but the grower has the option of ploughing under tops thereby returning 68 lbs N and 38 lbs P_2O_5 or of feeding these to livestock and returning the equivalent in manure. However, provision must still be made to supply these elements removed by the roots.

Table 1

FERTILITY BALANCE FOR A 15-TON BEET CROP

	Nitrogen (N) lbs	Phosphorus (P_2O_5) lbs
Removed in roots	50	26
Removed by tops	68	38
	118	64
Fertilizer Commonly Applied		
100 lb/A Ammonium Phosphate	11	48
300 lb/A Ammonium Nitrate 33.5%	100	0
10 tons/A barnyard manure	100	50
Ploughing under sweet clover net gain from "N" fixed from air	50-75	

A study of the table shows that a grower who removes the tops and applies only 100 lbs of 11-48 depletes his soil by 108 lbs of N and 16 lbs P_2O_5. On the other hand a farmer who feeds his tops and fertilizes with 100 lbs of 11-48 and 10 tons of manure, balances his nitrogen closely and increases his reserves of phosphorus by 34 lbs P_2O_5. A grower using sweet clover summerfallow and removing his tops would have to apply 150 lbs of 11-48 to maintain the phosphorus content of his soil and about 150 lbs of 33.5-0-0 to maintain the nitrogen content. If he ploughs under his tops he should not have to apply the ammonium nitrate to maintain fertility. If he grazes these tops, about half of the nitrogen present in the top would be

returned in the manure so that it would be necessary to apply only 50 lbs of ammonium nitrate.

Barnyard manure appears to have a value considerably in excess of the dollar value of the nitrogen and phosphorus it contains. The nitrogen in a ton of manure is only worth $1.20 and the phosphorus only 42c at current fertilizer prices. However, in terms of increased yield of beets, 15 tons of manure will increase yield by 3 - 4 tons of beets worth $45 - 60. Thus, manure produces $3.00 - $4.00 extra gross revenue per ton of manure on the beet crop alone.

To secure maximum value and retention of fertility elements, manure should be incorporated with soil immediately after application

In rotations at the Experimental Farm, Lethbridge, applications of 30 tons per acre of manure to beet rotations had a residual value for seven years and gave gross values for manure per ton of $5.00 to $7.17 at 1945 prices.

Manure and ammonium phosphate have been proven to be the ideal combination to yield the maximum amount of sugar per acre from beets. However, only 24% of the beet fields are manured. This means that probably 50% received manure some time in the rotation. To double the manured acreage we would probably have to double the livestock production and feeding on beet farms. This would require another 50,000 head of cattle.

Hill[1] reported the extreme difficulty in obtaining a satisfactory

[1] K. W. Hill - Proc. A.S.S.B.T. 63 - 73, 1946.

stand of beets in plots without manure or phosphate fertilizer. Emergence was usually satisfactory but the seedlings displayed much more susceptibility to seedling diseases and insect injury than did seedlings growing on fertilized plots. This work emphasizes the importance of high fertility in obtaining uniformly good stands so essential for mechanical thinning.

Increased sales of ammonium nitrate indicate that the farmers are becoming aware of the need for extra nitrogen in certain rotations. Since 1950, sales to beet growers have risen from 4 to 1000 tons annually. Applications of ammonium phosphate (11-48-0) have also risen during the same period, indicating that growers are becoming more conscious of fertility needs.

Anhydrous ammonia is a new product being offered to growers. Preliminary tests on beets in this area indicate responses comparable to ammonium nitrate when applied at the same rate. Anhydrous ammonia is a gas and in bulk is considerably cheaper than solid ammonium nitrate, but facilities for storage, distribution and application are still sufficiently expensive to prevent much of the savings being passed on to the grower. This gas can be injected into irrigation water or directly into the soil either previous to planting or as a side dressing. Anhydrous ammonia applications at time of planting appear to give higher yield responses than mid-season applications. Experiments are now underway to determine the advisability of applying anhydrous ammonia the previous autumn.

What About Doubles?

W. G. Smith

In the system of mechanized beet culture, some doubles will be present. In 1956 an experiment was conducted to study the effect of doubles on the yield. In a good stand of commercial beets, plots were hand thinned to 70, 100 and 130 hills per 100 feet of row. In each of these stands doubles were left at the rate of 0, 20 and 40 per 100 feet of row. There were a total of nine treatments each replicated 12 times. Two beets three inches or less apart was classed as a double.

The results show that the dense stands had small beets but that differences in yield were small. The sugar content was practically the same in all treatments.

The Effect of Doubles on the Yield of Beets

	Thinned Stands		Acre Yield				
Hills (1)	Doubles (1)	No. Beets (1)	Sugar lbs	Beets Tons	% Sugar	No Beets Harv. (1)	Ave. Wt. B'ts Harv. (1)
70	0	70	6664	18.88	17.65	72	2.20
70	20	90	6800	19.52	17.58	87	1.90
70	40	110	6996	19.64	17.68	105	1.57
100	0	100	6864	19.19	17.72	94	1.73
100	20	120	6770	18.93	17.88	110	1.45
100	40	140	7022	18.79	17.38	126	1.26
130	0	130	6944	19.65	17.80	116	1.44
130	20	150	6532	19.42	18.08	131	1.25
130	40	170	6530	18.83	17.34	136	1.17
			6792	19.20	17.69	108	1.55
Summary							
70	0-40	90	6820	19.35	17.64	88	1.89
100	0-40	120	6885	18.90	17.66	110	1.48
130	0-40	150	6669	19.30	17.74	128	1.29
70-130	0	100	6814	19.24	17.72	94	1.79
70-130	20	120	6701	19.29	17.84	109	1.53
70-130	40	140	6849	19.09	17.49	122	1.33

(1) 100 feet of row

This test shows that a number of doubles can be tolerated without reducing yield. It is expected that more doubles can be tolerated on early plantings and fertile fields. Under average conditions it would appear that 130 beets per 100 feet, including a number of doubles, will not reduce yield. If such stands can be produced mechanically the only need for beet workers is to hoe weeds.

Under actual conditions there are some spots in most fields, missed by the thinner, where there will be 4, 5, 6 or more beets in a foot of row. If the beets in a clump are widely spaced so that they will develop into marketable beets there is no need to touch the clump. If, however, the beets in a clump are so close that they will not develop into marketable beets, the centre of the clump can be removed with a hoe.

Although a certain number of doubles can be tolerated without affecting yield, doubles tend to increase the difficulty of mechanical topping. Beets vary in the height they grow out of the ground.

When double beets are of unequal height one of them will be poorly topped.

This test of an exploratory natured was conducted partly to find out how to do it. There are several unanswered questions. Why was there a greater loss of beets, between thinning and harvest, in the dense stands than the thin stands? Are two beets three inches apart doubles? These and other questions remain to be answered, but for the present, doubles as defined in the test can be tolerated without reducing yield.

Wilde Bros. Pioneer 4-Row Harvester

In the summer of 1955, the Wilde brothers Robert and Arvin, sons of the late pioneer farmer Jesse H. Wilde, sold both of their previously used harvesters with the idea they were going to design and build a harvester of their own. Their new machine would be a two unit 4-row outfit with the topping device mounted on their Model "A" I.H.C., while the lifter-loader would be drawn by a D 4 "cat".

An overall view of the 4-row lifter loader unit delivering beets direct to truck

The topper is unique in that it is situated under the tractor while the depth of cut and the lifting and lowering of the machine is controlled by the tractor hydraulic system. The finder wheels travelling faster than the ground speed are driven by two rubber-tired wheels that constitute part of the topper.

The lifter loader itself is designed with lifter wheels of the disc design that bring the beets up to be "paddled" back into an auger-type cross conveyor. Dirt is removed from the beets as they are taken into another auger conveyor that conveys them into the elevator for loading into the truck.

No waste of a valuable supplementary crop here. Note the undisturbed windrows of clean, well-piled beet tops

Hydraulic control and adjustment of the topping finders and knives is an outstanding feature of the Wilde topper

However, at the beginning of the 1955 harvest these machines were not completed as above described and several days of changing, strengthening, trying, more changing and trying before finally it was made to work. Comments from others who were noting the progress was anything from, "I'm holding my breath for them," to "They must be crazy." The fact is there were over 90 acres of beets to be harvested and they had to make it work, and like the Little Red Hen "they did".

These machines did as high as 10 acres per day that fall with two men operating. The topping unit is said to be one of the best in use, not only because it can be instantly regulated for heavy or light tops but also for the class of topping it does.

A side delivery rake is drawn behind the topper, and while the loading of the beets is in progress the tops are left untouched because the truck wheels are on either side of the windrow of tops.

With some minor changes these successful young farmers harvested over 112 acres in 1956. This is an example of the ingenuity it takes to compete with the shortage of labor and high costs that exist in this age of automation.

Briosi-Kirchner 4-Row Harvester Proves Successful

The Briosi-Kirchner harvester made its debut in 1956 with three machines being released for use. This is a two operation set-up. A four-row tractor mounted topper first tops the beets. This tractor pulls, at the same time, a side delivery rake which windrows the tops. Hand labor follows this operation trimming the beets, if necessary, while still in the ground or a whipper trimmer may be used. Then a four-row lifter loader elevates the beets direct to a truck.

With power lift and power steering control the operator is able to adjust the machine for different types of soil conditions and to hold the machine exactly on the rows. The beets, after being lifted by the press-wheel lifters and passing through a beater, are discharged to individual chain conveyors. Two of these deliver to each of the two auger cleaner elevators. Two augers deliver the beets to a potato chain elevator which in turn delivers continuously to the trucks.

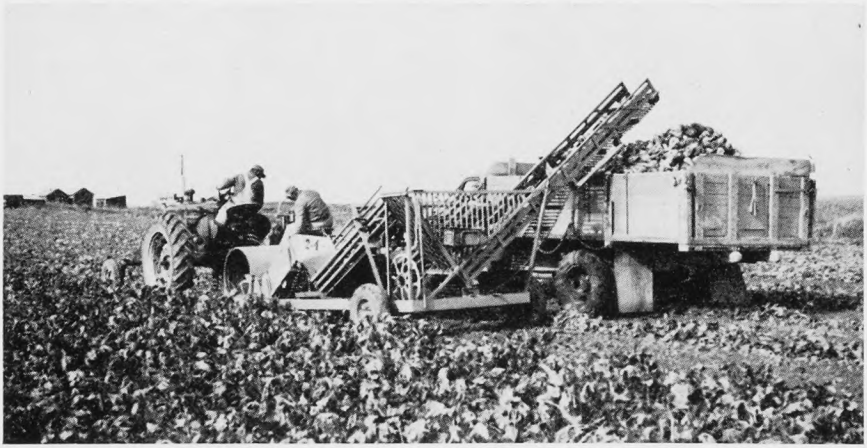
The machine purchased by Canadian Sugar Factories Ltd. at Picture Butte, harvested over 100 acres in 1956, its initial year.

Various types of soil conditions, from dry and cloddy to some fields far too wet to be harvested otherwise, were encountered. Any weak points of the machine showing up were listed for correction for 1957.

The first operation—topping 4 rows and moving tops over to neat windrows with trailing side delivery rake

Advantages of the Briosi-Kirchner machine are several:

1. High potential capacity. With sufficient trimmers and trucks the average grower can complete his harvest in 2 to 3 days.
2. Light draft. This is realized through use of press wheel lifters. A 3-plow tractor will handle the 4-row harvester.



The 4-row swath taken by the B-K harvester quickly disposes of the harvest on this field

3. Trash and clod removal. Practically all foreign material is removed by the auger elevators, including those fingerling beets from complete machine thinning.
4. Excellent top salvage. By topping and windrowing in one operation the tops are left neatly in windrows and undisturbed.
5. Minimum of moving parts. Simplified principles have reduced maintenance and sources of breakdowns to a minimum.
6. Being of trail type construction, bothersome mounting is eliminated and tractor is readily available for other work as well.

Gemco Harvester Comes To Alberta

Mr. and Mrs. Jac Braat and family of seven sons and one daughter came to Canada from Holland in 1953 because their small 45-acre farm there held only limited possibilities for such a large family of boys.

Gemco operation No. 1—topping and tops removed from the field (to silage storage)

During their first year in southern Alberta they worked on the Frank Pavka farm in Cranford. That fall they were able to negotiate the purchase of a 160 acre irrigated farm in the Barnwell district. Besides doing the work on their newly acquired farm, they contracted the beet work on the Pavka farm for another year, and in 1955 and 1956 they operated the 80-acre beet contract of W. S. Johnson and Sons.

During the fall of 1956 they purchased a new two-row Gemco beet harvester, mechanically harvesting 140 acres, including their two contracts plus additional acreage on a custom basis. All of the labor requirements were met by the boys who drove the trucks (2 - 3), the topper and the lifter-loader. One boy did field trimming of the beets in the ground before lifting. With this equipment daily deliveries of 150 tons were common.

The two-row harvester consists of a topping unit with the lifter loader, a second unit. Both can be mounted on one tractor for a complete once-over operation or each unit mounted on separate tractors.

This 2-row Gemco lifter loader harvested over 150 tons on peak days

The Gemco harvester is designed for maximum beet top salvage and delivers the entire crown and beet top into the cross conveyor for either field windrowing or elevating into a truck for green feeding or silage. The lifter - loader delivers beets directly into the truck.

Mrs. Braat and sons were pleased with their efficient harvest results and very happy with the negligible field losses with the Gemco harvester.

A seasick couple lay stretched out in deck chairs—somewhere between life and death. Meanwhile their young son became more rowdy by the minute. Finally the mother mustered voice enough to say, "John I wish you would speak to Willie."

The Father, unable to lift his hand, said feebly, "Hello Willie."

Each day is the only one of its kind.

Growers You Should Know

Fertility and Irrigation Pay-Off

Frank Niedermier, a relatively new beet grower of the Stewart-Broxburn district, has steadily increased his above yearly average tonnage to finally top the district in 1956 with 18¼ tons per acre.

This rapid rise to profitable prominence has not been without cause. Beet land preparation consists of summerfallow manured from the farm feed lot to increase fertility and improve soil structure, bladed to a depth of 14 - 16 inches to break the hard pan. The land is subsequently packed on the surface while remaining loose underneath for better root penetration and growth.

Feed lot manure in the making—an ssential adjunct to high tonnage fertility

Good seed bed preparation, floating and cross harrowing, timely planting and dependable labor leaving a 90% thnined beet stand also contribute towards this success. The beets receive adequate cultivation in due season and are side dressed after thinning with 100 pounds or more of nitraprills.

"Irrigation is another factor deserving attention," says Frank. "Beets need to be kept watered and on time; and you can't beat a sprinkler for even distribution." Preparation, fertility and timeliness of all operations with good labor have paid of.

Frank Kubik Mechanizes

To many in southern Alberta sugar beets mean "bread and butter." Nearly everyone realizes the great benefit sugar beets have been to the irrigated areas of southern Alberta, recognizing that without them farming enterprises would be different and far less prosperous.

In recent years the labor shortage has become to many growers a pressing and serious problem. However, few have rebuilt their farming program excluding sugar beets. Instead they have called upon many ingenious methods to cope with this problem.

Four to five times over with the harrow firms the seed bed for Frank Kubik Jr. of Tennion

Frank J. Kubik of Tennion station is one of many who started the 1956 season without labor. Having had some experience with the thinner in 1955, Frank realized that here was a machine that could help him. Thinning time found him going up and down the rows with his own Silver thinning machine. Casual labor was found that completed the hand labor, leaving the fields clean and in the eyes of the Kubiks, beautiful.

To handle the harvesting of his crop, a new John Deere No. 100 topper was purchased. In less time than was normally required for hand topping, Frank and his wife Mary, without further help, topped and delivered their 38 acres of sugar beets.

The 15.4 tons per acre was rich reward to this young farming couple for their confidence in the mechanical aids to sugar beet production. It is this spirit of confidence and optimism that is pushing the industry along in spite of obstacles that do arise.

Timeliness Pays Extra Dividends For Takahashi

"Is there any one thing that made for your high tonnage in 1956?" "No," said K. H. Takahashi, "It was several things." He mentioned extra fertilizer, early planting, careful thinning and the weather, along with extra irrigation.

Kay says proudly that with the help of his wife and their son, they did all the work — hand and machine — on 46 acres of beets this year besides doing the other necessary work around the farm.

T. K. Takahashi taking off the 17.29 tons per acre harvested from his 27-acre crop

The contract on the LaRue M. Palmer farm is for 27 acres, which in 1956 produced 17.29 tons per acre. No definite rotation is followed but at least two-thirds of his contract is planted in summer-fallow. Grain, some small acreage of alfalfa, garden, potatoes and summer-fallow make up the balance of the farm.

Early in the spring 100 lbs of nitraprills was applied and worked in. After careful attention to seed bed preparation, the beets were planted early with 100 lbs of 11-48-0. Following the hand thinning of an excellent stand, the beets were cultivated and side dressed with another 200 lbs of nitraprills.

This year's weather, ideal for rapid growth, unusual summer rains with the addition of irrigation water when required, contributed to the successful harvest.

Careful attention to details mean several tons per acre and this fact was born out at topping time. Kay used a John Deere 100 beet harvester and he says it did practically a perfect job because of uniform size and even spacing — a result of good thinning. The trimming that had to be done was almost negligible and his wife took care of the clods on the turntable while his son operated the harvester.

Mr. Takahashi, who came to this area in 1927, has worked beets every year since either as beet laborer or as tenant farmer, and he says, "that's a lot of beets."

Salute Angelo Boras and Family

Every year one can look about the territory and point out certain growers whose achievements are quite praiseworthy. While they may not have rated the highest tons per acre award, their accomplishments are none the less most commendable. People of this type are some of the strongest spokes in the Big Wheel of the Sugar Beet Industry. Anglo Boras of Coaldale is a grower who comes within this class referred to.

A good moisture conservation practice—harrowing immediately behind cultivator

Angelo along with his good wife and tiny daughter Jane, arrived in Canada from his native Yugoslavia in 1926. His first work in this country was in the sugar beet fields of the Raymond area. However he tried his hand at several other jobs here and in eastern Canada before finally settling down on a rented irrigated farm in the

Raymond area where he had his first experience as a beet grower. Angelo soon found that his efforts were paying off and through the years gradually increased his beet acreage and land tenure. The years also brought with them a fine family of three girls and three boys.

In 1945 Angelo bought a 320 acre farm in the Coaldale area. He has gradually increased his holdings to the point when he presently operates an 800 acre farm with 90 acres of sugar beets. This cash crop is rated highly in the estimation of Mr. Boras. In 1956 he raised 90 acres with a yield averaging on the 15-ton per acre level — an accomplishment worthy of mention. When queried about his ideas on beet raising Angelo replied, "Just do the right thing at the right time and this goes for land preparation, drilling, cultivation and irrigation." Deep, thorough cultivation along with frequent light irrigations are "musts" in the Boras program.

A satisfying conclusion—the last of a 1300 ton crop goes to market from the Boras farm

Angelo has also had good labor relations over the years. A Dutch family, the Grace Veldman's comprised of the mother, four boys and a girl, have been on the Boras farm the past three years. In 1956 the five workers handled 90 acres and at harvest time topped 1,333 tons in just 21 days — a nice earning and a tribute to their industry.

More Records Fall

Remember the four-minute mile that for so long remained unconquered, and then was surpassed by two men the same year. A similar condition existed in the Tempest district this year. The twenty-ton per acre barrier which had existed in this area since the establishment of the sugar beet industry was exceeded last year for the first time by two Tempest growers.

Frank Otrhalek had a yield of 20.86 tons per acre on 34.7 acres. Joe Csabay had a yield of 20.71 tons per acre on 27.1 acres. Besides being the two top growers in the Lethbridge - Coaldale area, they placed second and third respectively in the area between Lethbridge and Taber, which is a notable feat in itself.

Discing—a necessary operation to seal soil and speed decomposition of crop residue ploughed under

Both Frank and Joe believe that although good preparation on good land combined with timely operations, are essential for growing a successful beet crop, the type of work done at thinning time determines the maximum yield that a grower can expect. Both these men had very good beet workers last year.

Although these were the only "twenty ton" crops at Tempest, the many other good yields raised the average tonnage for the district to 16.09 tons per acre. This was the highest average tonnage of any district in the beet growing area which brings additional honor to the Tempest growers.

To the Tempest district as a whole, and to Frank and Joe especially, we say congratulations for a job well done.

John Turcato Looks Ahead

John Turcato is looking to the future. In 1954 he commenced a levelling program and is optimistic in thinking that level, well drained land is the answer to higher yielding crops and ease of operation. Here is his story.

"I came to Canada in 1913 from Italy and bought my first parcel of land in 1928. I am still farming that land after thirty years, but what a change! I am going to finish the heaviest land levelling job ever undertaken in southern Alberta this year.

Use of heavy equipment for land levelling as shown here requires careful engineering

"This section before levelling was very rough with six rolls and valleys to the mile. The deepest cut we made was about six feet. All of the top soil was saved except the first cutting as we moved across the field. Stakes were laid from south to north to grade about two per cent which is ideal for surface irrigation and solves the drainage problem.

"In irrigating I like parallel ditches 75 to 100 feet apart and ⅛ of mile between cross ditches. These are easily filled with a new machine I have which fills and levels in one operation.

"We have always grown our beets on the north side of the old canal on the old irrigation land, and our average since 1940 has been 16.3 tons per acre. In 1956 the beets grown on newly levelled land with 250 pounds of nitraprills without any manure or building crop produced a half ton more than our 16 year average, and two ton over the well prepared land north of the canal.

"I hope in the not too distant future to have a complete rotation on this farm including stock feeding for maximum yields. I would like to grow the kind of crops that would make me glad I'm a farmer.

The culti-packer—a useful tool in seed bed preparation

Most men leave the farm because of low yields, hard work and too little profit. I hope to make a success out of this and get the greatest satisfaction of my life because I think it will work and I intend to stick with it."

E. Cattoi - A Consistant Producer

E. Cattoi of Shields Station has consistantly raised good crops since becoming a beet grower in 1942. His average tonnage for those 15 years is 14.86 tons per acre, with the lowest being 11.66 in 1948. During the past seven years on an average acreage of 20.6 he has averaged 15.81 tons per acre, which is 4.84 tons above station average for the same period.

He has been fortunate enough to secure good beet labor each year, but that is not all of the reason, because so have other growers who have not done as well. Usually his beets are grown partly on clover fallow, partly on pea land and the remainder on first year beet land. The last few years he has applied 200 lbs of nitraprills just prior to planting, and well over 100 lbs of A.P. 11-48-0 at planting time. Neighboring growers who have not been so successful have done the same things.

Just what is his secret of success?

There are a number of things which, although they may not be the complete answer, have contributed greatly. Beets are his main

Dusting for flea beetle with 10 lbs of 3% DDT per acre

Sample beet on August 20

crop and Ed prepares his land thoroughly, and then does a good job of planting as early as possible. He learned several years ago that flea beetles and other spring pests take a bigger toll than most growers realize, and so he takes no chances and dusts with DDT to eliminate them. His cultivations are timely. His first irrigation is early and he sees to it that the beets are supplied with plenty of moisture right up to harvest time.

Syphon tubes facilitate even water distribution on summerfallow preparation here

It appears that the main reason for his high yields is E. Cattoi himself. His work in the beets has been as timely, and thorough, as that of his labor. His extra effort has been well repaid with an additional 4.84 tons per acre — a real bonus for efficiency.

Personnel Changes

J. R. HUMPHRYS APPOINTED SUPT. WINNIPEG

The many friends of J. Ross Humphry's wish him success in his recent appointments as factory superintendent for the Manitoba Sugar Co. Ltd., at Winnipeg, effective January 1st, 1956. Following the close of the school term he was joined by his wife Alice and daughter Denise.

Ross came to the Raymond factory from the United States in 1928, having gained experience in factories in Utah, Idaho and Wyoming. He worked at Raymond as beet-end foreman until 1936 when he came to Picture Butte during construction of the new factory there and took over duties of superintendent that fall for the first campaign. He held this position until his appointment at Winnipeg.

Ross is an ardent sports fan. Past local baseball teams under his management have captured provincial titles. He has been an active leader in community enterprises and maintains a keen interest in local affairs.

NEW SUPT. PICTURE BUTTE FACTORY

On January 1st, 1956, Wilfred "Wit" Hague became the new superintendent of the Picture Butte factory. In this appointment he followed transfer of J. Ross Humphry's to Winnipeg.

Wit started with the Utah-Idaho Sugar Company at the Raymond plant in 1925. Experience gained through various departments qualified him for a position as beet-end foreman at the new Picture Butte factory. During construction of this plant he was in charge of all pipe installation.

Wit and his wife, the former Luella Atwood, have one son Robert, married and living in Spokane, Wash., and one daughter Necia, married and living in Picture Butte.

The real success of Wit's first campaign as superintendent in 1956 is a tribute to the confidence and co-operation he has gained from all those with whom he works.

ASST. AGRICULTURAL SUPT. RAYMOND FACTORY

The appointment effective November 1, 1956, of Mr. Arledge W. Hill as Assistant Agricultural Superintendent for the Raymond Factory District, was recently announced by Company Management.

This appointment entails supervision for acreage and personnel in that area incidental to the growing and receiving of beets for the Raymond factory unit. Mr. Hill comes to this position well fitted by experience and training, having served continuously as a fieldman in the Company Agricultural Department since 1945, following shorter periods of employment with the Company in 1938-39 and 1942.

Mr. Hill, son of Mr. and Mrs. John Hill, pioneer settlers of the Stirling district, received his early training in Stirling schools followed by a year at Olds School of Agriculture. He graduated in 1945 from the University of Alberta with a B.Sc. in Agriculture, majoring in Soils. This was followed by one term of post-graduate work in Soils at Colorado A. & M., Fort Collins, in 1948.

Mr. Hill and Mrs. Hill (the former Jolayne Price) have four children, three boys and a girl.

Long Service Men Retire

BERT LOVE - 30 YEARS SERVICE

The retirement of J. B. "Bert" Love following the 1955 campaign marked the close of 30 years in the sugar industry. Starting with the Utah-Idaho Company in Raymond in 1925, Bert has been with the Raymond or Picture Butte factory ever since. In 1935 when construction of the new Picture Butte plant was started, Bert was transferred as a construction worker. Upon completion of the Picture Butte factory he stayed on as battery operator. He changed to the evaporators and later to sugar boiler, the position he held upon retirement.

Bert, his wife Kay, and their son and daughter still choose to live in Picture Butte. From behind the coffee counter of their bakery-cafe, Bert renews old acquaintances as he dishes out pie and coffee.

NEPHI CHRISTIAN - 31 YEARS SERVICE

Nephi Christian was born in Scofield, Utah, February 3, 1894. The Christian family arrived in Alberta in May, 1903, along with many others settling here shortly after the turn of the century.

In his early twenties, after having gained his schooling in Raymond, he had the urge to return to the United States and was away from Alberta between 1919 and 1926.

Upon his return he was employed by Canadian Sugar Factories at Raymond and this has been his one place of employment since. His first job was on the Knife Station — filing and setting the cutter knives — and until 1935 when filing machinery was installed, this was done by hand. For 31 seasons "Neph" has capably filled this position.

During the inter-campaign period he was employed as a carpenter in construction and repairing of the factory yards and buildings. He says that he has certainly enjoyed his years of service with Canadian Sugar Factories and the congenial association there with his fellow workers.

Our wish is that his health will improve so that he can enjoy whatever he undertakes to do upon his requested retirement effective March 1, 1957.

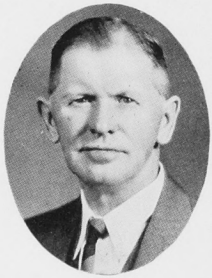
MELVIN FLEXHAUG - 16 YEARS SERVICE

Melvin Flexhaug retired March 1, 1957. "Mel" was born February 15, 1892, at Briton, South Dakota, where later he attended school previous to his coming to Alberta in the fall of 1910.

Homesteading on land was the common thing at that time and Melvin chose Manyberries to settle. After 11 years on the homestead he came to Raymond where he was employed on the H. S. Allen farm for one year and then on the L. L. Pack farm for 17 years.

For the past 16 years Mel has been employed by the Sugar Company, first on the presses during campaign and later as yearly watchman. Our best wishes go with him.

In Memoriam



John T. (Jack) Simpson, Master Mechanic of Canadian Sugar Factories from 1928 to 1953, passed away on February 21 in a Lethbridge hospital.

After arriving in Canada in 1907 from his native England, the late Mr. Simpson worked in the mines in Alberta and British Columbia. Upon the death of his father in 1928 Jack was appointed Master Mechanic of the Raymond factory. In 1935 he moved to Picture Butte to take charge of construction of the new factory there. On completion of construction he continued as Master Mechanic until his retirement in 1953, when he and his wife moved to Lethbridge. He continued his connection during campaign operating periods each year since.

Besides his widow, he is survived by two sons and two daughters, William, Robert, Lexa (Mrs. A. W. Stone) and Betty (Mrs. Wm. Yerka).

The funeral service in Southminster Church was attended by hundreds of Southern Albertans who had come to pay final respects to a well-loved friend.

High Tonnage Growers In Each Beet Growing Area - 1955

RAYMOND - MAGRATH

T. Imahashi

Roy Ikeda

C. Sudo

TABER - CRANFORD

H. V. Haslam

D. C. Bennett

I. E. Harris

LETHBRIDGE - COALDALE

Frank Sovka

Louis Pavan

H Boulton

LETHBRIDGE NORTHERN

W. Itaya

Louis Chrupka

F. J. Kubik

Honor Roll - 1955 Crop

Alberta Sugar Beet Growers

Growers at each Receiving Station having the Highest Tonnage per Acre on over 10 Acres Harvested

	Acres Hvst'd	Tons Per Acre
RAYMOND		
T. Imahashi & Housley	33.2	15.04
B. Nilsson & Sons & Ikeda	72.6	14.66
C. Sudo & H. M. Holmes	39.8	14.65
H. Ramotowski	21.1	14.58
K. Sugimoto & Sons	59.5	14.33
Ken Sunada & Walker	40.8	14.11
STEVANS		
Louie Kovacs	44.9	12.49
Tom Oka	19.4	12.00
MAGRATH		
M. Schneyder Jr.	29.5	11.76
John Bibo	18.3	10.97
STEWART		
H. Boulton & Sons No. 1	23.4	16.87
J. Dyck & W. H. Fairfield	11.4	14.55
BROXBURN		
Louis Pavan	12.7	18.30
H. Boulton & Sons No. 2	15.1	18.03
Y. Miyauchi & Friesen	10.7	17.66
COALDALE		
Peter Penner	21.5	17.58
Clarence R. Cluff	22.6	17.12
John Mantler	14.4	16.97
Wm. Nagy	17.9	16.95
WING		
John Vaselenak	30.6	17.27
A. C. Harris	16.1	16.91
TEMPEST		
Frank Sovka	29.0	18.54
Frank Slezina	41.1	16.87
Frank Zachar	35.0	16.65
CRANFORD		
Frank Pavka Jr. & Sr.	34.9	18.27
Tony Sajfrt	24.3	17.32
John Pavka	36.5	17.30

	Acres Hvst'd	Tons Per Acre
PICTURE BUTTE		
M. Karia & I. Sundal	54.3	16.54
John Brecka	29.4	16.12
G. Nakatsuru & Bowes	30.3	15.64
Hikida Bros.	56.6	15.53
Steve Ramias	33.5	14.88
Louis Vavra & C. Ully	20.4	14.63
Joe Rakus	62.7	14.51
Paul Nemecek	28.2	14.36
SHIELDS		
E. Cattoi	22.7	15.91
Carroll A. Snider	27.0	14.55
B. Sakon	18.8	13.78
WHITNEY		
Jacob Riehl	27.7	14.78
Frances Janos	26.7	14.43
MONARCH		
R. E. & H. Van Dyke	30.7	11.46
H. Hollander	16.4	11.34
IRON SPRINGS		
Wm. Yalowega	16.3	16.29
Franz Bublait	20.2	14.46
TENNION		
W. Itaya	28.0	18.91
Louis Chrupka	30.6	17.96
F. J. Kubik	30.0	17.88
TABER		
H. V. Haslam	19.8	19.05
D. C. Bennett	28.4	18.84
Ivan E Harris	26.6	18.77
Norman J. Hall	21.3	18.73
Joe Brezovski	20.2	18.27
E. N. Francis	50.1	18.22
Frank Sekura	25.7	17.59
Roy E. Harris	26.4	17.41

High Tonnage Growers In Each Beet Growing Area - 1956

RAYMOND - MAGRATH

K. H. Takahashi

Alex Dudas

Ken Sunada

TABER - CRANFORD

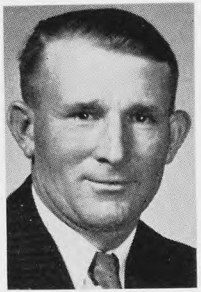
Roy E. Harris

John Pavka

Frank Zachar

LETHBRIDGE - COALDALE

Frank Otrhalek

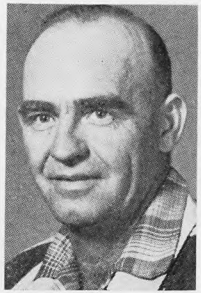


Joe Chabay

Alex A. Bodie

LETHBRIDGE NORTHERN

Mike Baran



L. G. Nordean

E. Cattoi

Honor Roll - 1956 Crop

Alberta Sugar Beet Growers

Growers at each Receiving Station having the Highest Tonnage per Acre on over 10 Acres Harvested

	Acres Hvst'd	Tons Per Acre
RAYMOND		
K. H. Takahashi & Palmer	27.2	17.29
Ken Sunada & Barton	10.1	16.69
T. Imahashi & Housley	36.4	16.38
S. Y. Oishi	55.7	16.04
J. Sklenak & K. S. Co	34.5	16.03
K. Sunada & Walker	40.0	15.51
STEVANS		
Alex Dudas	19.0	17.09
Tom Oka	19.0	14.90
MAGRATH		
T. Takahashi	23.0	13.96
Steve Gruninger	14.5	12.60
STEWART		
Frank Niedermier	25.4	18.27
H. Boulton & Sons No. 1	25.2	17.30
BROXBURN		
Peter Siebert Jr.	27.8	17.25
T. Tanaka	33.2	16.64
Steve Vucurevich	36.0	15.86
COALDALE		
Alex A. Bodie	30.2	20.30
Robt. Skiba	36.1	18.05
John E. & J. J. Funk	12.1	17.70
K. Takeda	36.7	17.62
WING		
John Vasenelak	31.6	19.66
A. C. Harris	19.0	18.48
TEMPEST		
Frank Otrhalek	34.7	20.86
Joe Chabay	27.1	20.71
John J. Bartosek	14.1	19.34
CRANFORD		
John Pavka	47.6	20.68
Frank Zachar	25.7	20.33
Jack Ito	25.7	20.10

	Acres Hvst'd	Tons Per Acre
PICTURE BUTTE		
Joe Rakus	68.0	17.35
A. Vogelaar	42.4	16.96
M. Karia	67.0	16.62
T. Kariatsumari	38.9	16.53
Ogo Bros.	36.5	16.50
W. Sosich	39.2	16.36
Joseph Duncan	26.0	15.91
H. M. Haney & Sons	60.1	15.64
SHIELDS		
E. Cattoi	21.2	17.36
Joe Trojek	28.3	16.38
B. Sakon	18.8	15.86
WHITNEY		
Frances Janos	24.4	16.42
A. Carlson	19.5	15.74
MONARCH		
Louis Tyukodi	20.5	12.42
R. E. & H. Van Dyke	37.1	12.31
IRON SPRINGS		
Peter Erais	15.2	16.24
Joe Snopek	22.5	15.51
TENNION		
Mike Baron & Joe Prusak	18.2	18.53
L. G. Nordean	40.1	17.83
Pete Chrupka	30.3	16.96
TABER		
Roy E. Harris	26.7	21.25
W. A. Bennett	12.4	20.29
Gus Sebok	50.3	20.02
Joe Brezovski	20.3	19.92
Joseph Gregus	24.0	19.75
Gabriel Tajcnar	20.8	19.56
Ivan E. Harris and Price	12.0	19.22
E. N. Francis	50.8	19.13
W. R. Meyers	45.0	19.13
John Merkl	24.4	19.13

Lethbridge Monthly Precipitation Figures For Fifty-Five Years

EXPERIMENTAL FARM - LETHBRIDGE, ALBERTA

INCHES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1902	0.67	1.03	0.48	0.02	11.27	5.68	5.95	0.69	0.84	0.02	0.43	0.84	27.92
1903	0.62	0.79	0.89	0.33	2.95	1.12	1.86	3.21	1.60	0.17	0 58	0.70	14.82
1904	0.50	0.90	1.03	0.41	2.86	1.80	0.96	1.19	0.52	0.85	0.03	0.35	11.40
1905	1.45	0.05	0.74	0.56	1.33	2.68	1.44	1.99	0.80	1.13	1.36	0 25	13.78
1906	0.22	0.20	0.54	1.30	8.60	2.31	0.83	4.70	0.16	1.93	0.81	0.88	22.48
1907	1.52	0.30	0.34	1.08	1.14	3.64	1.43	2 30	3.24	0 05	0.14	0.32	15.50
1908	0.27	0.75	0.79	0.69	2.60	7.01	0.42	0.90	0.58	0.57	0.00	0.36	14.94
1909	0.30	0.20	0.50	1.15	4.01	0.82	1.54	0.08	0.47	0.37	0.46	0.42	10.32
1910	0.24	0.83	0.17	0.28	0.79	0.53	0.09	1.07	1.95	0.60	0.41	0.94	7.90
1911	0.70	0.52	0.32	0.82	1.90	4.70	2.27	3.63	4.16	0.57	0.95	0.77	21.31
1912	0.69	0.40	0.44	0.20	0.66	1.73	2.78	1.41	2.61	1.07	0.99	0.23	13.21
1913	0.80	0.30	0.42	0.52	1.70	4.70	1.29	1.93	1.65	0.50	0.36	0.00	14.17
1914	1.55	0.96	1.12	0.54	0.29	2.48	0.93	3.59	1.07	2.17	0.63	1.19	16.52
1915	0.50	0.94	0.22	0.04	3.03	4.84	3.44	0 96	1 32	0 96	0.75	0.27	17.27
1916	1.09	0.86	0.90	0.46	3.77	3.54	3.33	2.97	4.66	1.99	0.49	0.51	24.57
1917	0.73	0.27	0.10	1.57	0.95	1.42	1.37	2 00	1.67	0.82	0 00	1.13	12.03
1918	0.46	0.76	0.66	0.13	0.58	0.76	0.85	1.23	1.07	0.24	0.43	0 46	7.63
1919	0.06	0.95	0.75	0.47	1.75	0 56	1.06	1.05	2 04	1.78	1.26	0.55	12.28
1920	0.84	1.21	0.89	4.37	1.66	0.40	2.59	0 20	0 05	0.99	0.06	0 79	14.05
1921	0.56	0.47	1.42	1.19	0.96	1.04	3.23	0.46	1.29	0.23	1.73	0.19	12.77
1922	0.43	0.41	0.81	2.57	0.89	1.87	2.30	0 40	0 81	0.78	0.47	0 60	12.34
1923	0.48	0.42	0.75	1.09	3.48	4.45	2 55	1.01	0 18	0.55	0.53	0.91	16.40
1924	0.66	1.04	0.69	0.56	1.17	3.82	0 54	2 91	1.46	0.59	1.02	1 54	16.00
1925	0.30	0.99	2.26	1.99	0.43	3.40	0.82	1.85	4 86	1.08	0.16	0.62	18.76
1926	0.26	0.70	0.11	0.34	0.64	4.67	1.15	2.31	4.62	0.31	0.52	0.56	16.19
1927	0.31	1.39	0.37	1.48	7.32	1.60	1.93	1.74	3 29	0.58	2.88	0.96	23.85
1928	0.94	0.79	0.93	1.32	0.09	6.79	3 98	1 54	0 24	0.85	0 28	0.33	18.08
1929	1.08	0.63	1.34	2.55	2.63	3.72	0.52	0 59	2.05	2.20	0.49	1.91	19.71
1930	0.37	0.20	0.77	1.53	1.54	1.42	1.87	0 57	2.36	0.58	0.92	0.21	12.34
1931	0.01	0.25	1.40	1.12	1.22	1.55	1.09	0.19	1.99	0.66	1.21	0.73	11.42
1932	0.81	0.55	1 05	2.73	2.99	2.06	0 74	3 63	1.00	1.07	1 87	0.74	19.24
1933	0.33	0.38	2.51	2.49	1.80	1.32	0 92	2 64	1.30	2.44	0.77	2 27	19.17
1934	0.43	0.31	2.30	0.13	0.71	4.00	0 43	0 60	2 97	1.70	1.11	0.59	15.28
1935	0.47	0.72	1.09	2.46	1.42	0.35	0.70	1.18	0 22	1.70	0.52	0 47	11.30
1936	1.19	0.62	0.98	0.78	2.01	1.89	0.41	0.90	1.39	0.69	0.48	1.40	12.74
1937	1.76	0.42	0.79	0.45	2.38	3.19	2 91	0 86	1.10	1.33	0.70	0 38	16.27
1938	0.91	0.80	1.85	0.88	3.21	1.16	1.28	1.72	0 81	0.96	1 93	0.22	15.73
1939	0.12	0.88	0.74	0.68	1.66	6.42	0 58	0 38	2.10	0.96	0.29	0 82	15.63
1940	0.03	1.43	0.63	3.47	1.32	1.25	1.72	0 39	1 57	1.37	1 03	0.38	14.59
1941	0.96	0.68	0.71	1.09	1.96	2.67	4.09	1.80	2.82	0.25	0.36	0.34	17.73
1942	0.11	1.21	0.64	1.06	4.61	4.34	3.22	1.00	1.49	0 20	1.44	0.26	19.58
1943	1.06	0 67	0.83	0.81	1.33	0.90	1.46	1.15	0 83	1 11	0.10	0.03	10 28
1944	0.10	1.33	1.08	1.08	1.52	1.76	2.92	1.69	1.05	0.00	2.00	0 57	15 10
1945	0.70	1.33	0.82	1.14	3.18	3.48	1.17	0.88	3 26	0 51	0.91	1.65	19 03
1946	0.54	0.29	0.30	0.43	2.18	4.43	1.01	1.49	1.97	4.37	2.51	1.48	21.00
1947	0.77	1.41	2.10	1.61	0.56	4.24	0.35	2.77	3 45	0 96	1.01	0.72	19 95
1948	0 90	1.68	1.39	1.14	4.24	6 06	2.02	0.10	0.00	0.52	0.55	0 35	18 95
1949	1.62	0 91	1.63	0.15	3.70	1.30	0 96	0.46	0 62	2 55	0.08	1.46	15 44
1950	1.15	0.32	1.51	1.00	0.91	1.33	1.77	0.78	0.89	0.97	1.20	0 59	12 42
1951	1.18	0.99	1.17	2.74	1.28	6.28	0.94	3.74	2.14	2.46	0.15	2.12	25.19
1952	0.69	0.55	1.12	0.20	1.65	2.51	2.03	2.58	0.35	0.27	0.51	0 04	12 50
1953	0.84	2.17	1.73	3.14	0.90	8.17	0.65	0.26	0 88	0 09	0.07	1.04	19 94
1954	1.63	0.41	1.20	1.42	1.12	2.16	0.77	5.02	3.70	0.08	0.29	0.23	18.03
1955	0.66	1.89	0.68	1.90	5.10	1.48	3.87	0.23	0.90	0.66	0.66	0.89	18.92
1956	0.90	0.82	1.41	1.34	1.30	3.42	2.94	2.54	1.53	0.79	0.40	0.69	18.08

55-YEAR AVERAGE

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
0.70	0.77	0.95	1.18	2.28	2.93	1.71	1.59	1.67	0.97	0.75	0.71	16.22

FROST DATA - 1902 - 1956 (inclusive)

EXPERIMENTAL FARM - LETHBRIDGE, ALBERTA

Year	Last Frost in Spring		First Frost in Fall		No. of Frost Free Days	Last Killing Frost in Spring		First Killing Frost in Fall		No. of Crop Days
	Date	Temp. °F	Date	Temp. °F		Date	Temp. °F	Date	Temp. °F	
1902	May 9	32.0	Aug. 29	31.9	112	Apr. 25	20.5	Sept. 20	27.5	148
1903	May 22	29.6	Sept. 13	31.1	114	May 21	26.0	Sept. 30	26.5	132
1904	May 25	29.9	Sept. 13	27.1	111	Apr. 18	25.0	Sept. 13	27.1	148
1905	May 19	32.0	Sept. 30	28.8	134	May 5	28.0	Oct. 10	24.8	158
1906	May 27	32.0	Aug. 25	31.2	90	May 8	28.0	Oct. 21	23.0	116
1907	May 13	23 0	Sept. 11	31.9	121	May 13	23.0	Sept. 13	24.2	123
1908	May 2	32.0	Sept. 23	32.0	144	Apr. 30	26.5	Sept. 26	19.2	149
1909	May 29	29.8	Aug. 28	29.8	91	May 8	25.4	Sept. 14	26.8	129
1910	June 4	31.6	Aug. 23	31.5	80	May 20	27.4	Sept. 12	26.3	115
1911	May 28	29.6	Aug. 27	29.4	91	May 1	25.2	Sept. 23	26.3	145
1912	June 6	28.3	Sept. 15	23.9	101	May 4	24.5	Sept. 15	23.9	134
1913	May 12	29.2	Sept. 12	32.0	123	May 6	24.8	Sept. 24	26.2	141
1914	May 12	29.8	Sept. 15	31.0	126	May 11	24.1	Oct. 7	20.1	149
1915	May 16	30.8	Sept. 11	31.2	118	Apr. 11	28.0	Sept. 12	26.5	154
1916	May 23	31.6	Sept. 14	31.2	114	May 13	25.0	Sept. 28	24.0	138
1917	June 4	31.0	Sept. 1	32.0	89	May 30	28.0	Sept. 29	27.0	122
1918	June 6	32.0	Sept. 15	28.0	101	May 26	21.0	Sept. 15	28.0	112
1919	June 1	31.0	Sept. 26	32.0	117	May 14	27.0	Sept. 29	26.0	138
1920	June 3	29.0	Sept. 19	30.0	108	May 30	26.0	Sept. 26	24.0	119
1921	May 31	30.0	Sept. 9	32.0	101	May 28	24.0	Sept. 15	28.0	110
1922	May 23	29.0	Oct. 2	32.0	132	May 6	28.0	Oct. 11	21.0	158
1923	May 29	29.5	Sept. 11	29.0	105	May 15	28.0	Sept. 22	25.0	130
1924	May 26	31.5	Sept. 20	28.5	117	May 6	25.5	Sept. 26	26.0	143
1925	May 17	30.0	Sept. 20	25.5	126	May 11	24.0	Sept. 20	25.5	132
1926	June 9	32.0	Sept. 11	30.0	94	May 2	28.0	Sept. 20	26.0	141
1927	May 18	32.0	Sept. 8	32.0	113	May 9	26.0	Sept. 26	29.0	140
1928	May 14	31.0	Aug. 14	31.0	92	Apr. 22	28.0	Sept. 8	26.0	139
1929	May 19	32.0	Sept. 6	28.0	110	May 15	24.0	Sept. 6	28.0	114
1930	May 23	32.0	Sept. 23	32.0	123	Apr. 21	29.0	Oct. 15	17.0	177
1931	May 21	32.0	Sept. 14	32.0	116	May 19	28.0	Sept. 23	25.0	127
1932	May 28	31.0	Sept. 3	32.0	98	May 15	29.0	Sept. 21	29.0	129
1933	May 20	30.0	Sept. 24	32.0	127	Apr. 20	20.0	Sept. 26	27.0	159
1934	May 12	32.0	Sept. 14	29.0	125	May 2	28.0	Sept. 20	21.0	141
1935	May 28	32.0	Sept. 26	21.0	121	May 8	26.0	Sept. 26	21.0	141
1936	Apr. 29	31.0	Sept. 14	32.0	138	Apr. 28	22.0	Oct. 1	23.0	156
1937	May 21	32.0	Sept. 24	30.8	126	May 6	25.1	Oct. 5	27.1	152
1938	May 15	30.4	Oct. 14	27.8	152	May 14	29.0	Oct. 14	27.8	153
1939	May 1	31.2	Sept. 25	32.0	147	Apr. 20	26.3	Sept. 29	29.0	162
1940	Apr. 26	30.0	Oct. 14	23.0	171	Apr. 19	18.0	Oct. 14	23.0	178
1941	May 22	30.0	Sept. 8	29.5	109	May 8	27.5	Sept. 25	26.8	140
1942	May 18	27.2	Sept. 18	28.0	123	May 18	27.2	Sept. 18	28.0	123
1943	June 8	32.0	Sept. 2	31.2	86	May 14	24.0	Sept. 8	27.5	117
1944	May 23	31.0	Sept. 19	30.5	120	May 7	28.0	Sept. 30	27.8	147
1945	May 12	32.0	Sept. 17	32.0	128	May 8	27.0	Sept. 24	30.0	139
1946	May 21	30.5	Sept. 23	25.0	125	May 10	16.0	Sept. 23	25.0	136
1947	May 28	24.0	Sept. 17	29.0	112	May 28	24.0	Oct. 22	19.5	147
1948	May 12	30.0	Sept. 6	30.5	117	May 3	26.0	Sept. 24	26.0	144
1949	June 18	32.0	Sept. 11	29.5	85	May 23	28.0	Sept. 12	21.0	112
1950	May 8	26.0	Sept. 11	29.5	126	May 8	26.0	Sept. 13	27.5	128
1951	June 27	31.0	Sept. 15	32.0	80	June 1	26.0	Sept. 24	26.5	115
1952	May 9	32.0	Oct. 4	26.0	148	Apr. 23	28.0	Oct. 4	26.0	164
1953	May 21	30.0	Sept. 26	29.0	128	May 13	26.0	Oct. 5	28.0	145
1954	May 14	30.5	Sept. 29	29.0	138	May 7	26.0	Oct. 1	22.5	147
1955	May 25	31.0	Sept. 10	30.0	108	May 17	27.0	Sept. 23	28.0	129
1956	May 13	30.0	Sept. 2	32.0	112	May 6	28.0	Sept. 5	26.0	122
55-YEAR AVERAGE										
	May 22		Sept. 15		116	**May 9**		Sept. 26		139

Minutes

Our minutes are like precious gold,
To save or throw away;
They either bring us joy untold
Or sorrow and dismay.

So give to every day its due
In honest, earnest toil;
The harvest pays in measure true,
As each man tills his soil.

'Tis he, who ever daily spends
His time in useful ways,
Who reaps rich stores of dividends
In happy future days.

—Author Unknown

SILVER SUNSHINE

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Cover Picture by Herald Photo

Sign of the Times

This machine thinning picture taken on the farm of John Sauer of Turin demonstrates a new concept coming into use in Southern Alberta's sugar beet growing area — machine production of this crop from planting to harvest. Slowly but surely the difficulties obstructing such realization are being overcome. Efficient machines already in use care for the harvest.

Thinning tools and the development of suitable operational practices are catching on to the extent that one Alberta grower in four used a thinner on all or part of his acreage in 1956. Monogerm seed and planters to place it in an accurate precise pattern in the row are being rapidly developed. Research is splitting the molecule and organizing new ones to provide chemicals for weed elimination. All will be part of the new production pattern.

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